REMARKS

Claims 1-20 and 26 are pending. 21-25 have been cancelled. Claims 1, 15 and 26 are amended herein. Reconsideration of the Application and Claims is respectfully requested.

102 Rejection

Claims 7-10 are rejected under 35 U.S.C. § 102(e) as being anticipated by Brandin et al. (US Patent No. 6,493,813 B1). Applicants respectfully submit that the Brandin et al. reference does not anticipate or render obvious the embodiments of the present invention as are set forth in Claims 7-10.

The Examiner is respectfully directed to Claim 7, which is drawn to a variable width memory system. Claim 7 is reproduced below in its entirety:

> 7. A hashing apparatus, comprising:
> a memory which stores a plurality of partial keys used to
> determine hashing conflicts;
>   a hash function block coupled to a memory that applies
> any polynomial to a full key and generates a hash value which
> is used to point to one of the plurality of partial keys stored in the
> memory, wherein the partial keys include saved bits comprising a
> consecutive, sequential string of bits derived from the original key.

Claims 8-10 depend from independent Claim 7.

Brandin et al. does not anticipate or render obvious the embodiment of the present invention that are set forth in Claim 7. Brandin et al. does not teach or suggest all of the limitations that are recited in the aforementioned Claims as is required to anticipate or render obvious the embodiments of the present invention set forth therein. Specifically, Brandin et al. does not teach or suggest a hashing apparatus that includes "a hash function block coupled to a memory that applies any polynomial to a full key and generates a hash value which is used to point of one of the plurality of partial keys stored in memory" as is set forth in Claim 7 (Claims 8-10 depend from independent Claim 7).

Brandin et al. only discloses a dissimilar method for forming a hashing code. A review of the passages of Brandin et al. indicated in the Office Action to disclose that keys are used to generate a hash value that point to locations where partial keys are stored in memory indicates that in fact there is no disclosure in Brandin et al. that indicates that partial keys are stored at all. Actually, Brandin et al. discloses that keys are used to identify addresses in memory where general information is stored (column 2, lines 43-53). Moreover, Brandin et al. discloses (see column 7, lines 15-15) that separate portions of a single key are used to generate an "extended transform." Brandin et al. discloses that such extended transforms are needed when a key is longer than 64 bits. It should be appreciated that this is very different from using a key to identify addresses in memory where partial keys are stored as is required to meet the limitations of Claim 7. In fact, nowhere in the Brandin et al. reference is it taught or suggested that the addresses of partial keys in memory are identified using keys as is set forth in Claim 7 (Claims 8-10 depend from independent Claim 7).

Consequently, the embodiment of Applicants' invention that is set forth in Claim 7 is not anticipated or rendered obvious by Brandin et al. Accordingly, Applicants respectfully submit that Brandin et al. does not anticipate or render obvious the embodiments of the present claimed invention as are set forth in Claims 8-10 which depend from Claim 7. Consequently, the rejection of Claims 7-10 under 35 U.S.C. 102(e) is improper and should be withdrawn.

103 Rejections

Claims 11-12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Brandin et al. (US Patent No. 6,493,813) in view of Rajski (US Patent Publication No. 2002/0016806). Applicants respectfully submit that the Brandin et al. in view of Rajski does not anticipate or render obvious the embodiments of the present invention as are set forth in Claims 11-12.

The Examiner is respectfully directed to Claim 7 (from which Claims 11 and 12 depend), which is drawn to a method for using hashing. Claim 7 is reproduced below in its entirety:

> 7. A hashing apparatus, comprising:
> a memory which stores a plurality of partial keys used to
> determine hashing conflicts;
>   a hash function block coupled to a memory that applies
> any polynomial to a full key and generates a hash value which
> is used to point to one of the plurality of partial keys stored in the
> memory, wherein the partial keys include saved bits comprising a
> consecutive, sequential string of bits derived from the original key.

Claims 11-12 depend from independent Claim 7 and set forth additional limitations of the present claimed invention.

Brandin et al. does not anticipate or render obvious the embodiment of the present invention that are set forth in Claim 7. Brandin et al. does not teach or suggest all of the limitations that are recited in the aforementioned Claims as is required to anticipate or render obvious the embodiments of the present invention set forth therein. Specifically, Brandin et al. does not teach or suggest a hashing apparatus that includes "a hash function block coupled to a memory that applies any polynomial to a full key and generates a hash value which is used to point of one of the plurality of partial keys stored in memory" as is set forth in Claim 7 (Claims 11-12 depend from Claim 7).

Brandin et al. only discloses a dissimilar method for forming a hashing code. A review of the passages of Brandin et al. indicated in the Office Action to disclose that keys are used to generate a hash value that point to locations where partial keys are stored in memory indicates that in fact there is no disclosure in Brandin et al. that indicates that partial keys are stored at all. Actually, Brandin et al. discloses that keys are used to identify addresses in memory where general information is stored (column 2, lines 43-53). Moreover,

Brandin et al. discloses (see column 3, lines) that separate portions of a single key are used to generate an "extended transform." Brandin et al. discloses that such extended transforms are needed when a key is longer than 64 bits. It should be appreciated that this is very different from using a key to identify addresses in memory where partial keys are stored as is required to meet the limitations of Claim 7. In fact, nowhere in the Brandin et al. reference is it taught or suggested that the addresses of partial keys in memory are identified using keys as is set forth in Claim 1 (Claims 11-12 depend from independent Claim 7).

Rajski does not teach or suggest a modification of Brandin et al. that would remedy the deficiencies of Brandin et al. that are outlined above. More specifically, Rajski does not teach or suggest a hashing apparatus that includes "a hash function block coupled to a memory that applies any polynomial to a full key and generates a hash value which is used to point to one of the plurality of partial keys stored in memory" as is set forth in Claim 7 (Claims 11-12 depend from Claim 7).

Rajski et al. only shows a very different method for synthesizing linear finite state machines. However, Rajski et al. does not teach the generation of a hash value from a full key which is used to point to one of a plurality of partial keys stored in memory as is set forth in Claim 7. Consequently, the embodiment of Applicants' invention that is set forth in Claim 7 is not anticipated or rendered obvious by Brandin et al. in view of Rajski. Accordingly, Applicants respectfully submit that Brandin et al. in view of Rajski does not anticipate or render obvious the embodiments of the present claimed invention as are recited in Claims 11-12 which depend from Claim 7. Consequently, the rejection of Claims 11-12 under 35 U.S.C. 103(a) is improper and should be withdrawn.

Claims 1-4 and 15-18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Brandin et al. (US Patent No. 6,493,813) in view of Rajski et al. (US Patent Publication No. 2002/0016806) in further view of Biran (US Patent No. 6,345,347). Applicant respectfully submits that the Brandin in view of Rajski et al. in further view of Biran does not

anticipate or render obvious the embodiments of the present invention as are set forth in Claims 1-4 and 15-18.

The Examiner is respectfully directed to Claim 1, which is drawn to a variable width memory system. Claim 1 is reproduced below in its entirety:

> 1. A method for using hashing, comprising:
> storing a plurality of partial keys in memory;
> applying a hash function to an original key to generate a hash value, wherein said hash function comprises any polynomial;
> accessing the memory according to the hash value;
> reading a partial key from the memory that corresponds to said hash value, wherein said hash value is based on said original key; and
> executing a conflict check by comparing a partial key derived from and incoming full key with the partial key stored in the memory.

Claim 15 recites limitations that are similar to those contained in Claim 1. Claims 2-4 depend from independent Claim 1 and Claims 16-18 depend from independent Claim 15 and set forth additional limitations of the present claimed invention.

Brandin et al. does not anticipate or render obvious the embodiment of the present invention that is set forth in Claim 1. Brandin et al. does not teach or suggest all of the limitations that are recited in the aforementioned Claims as is required to anticipate or render obvious the embodiments of the present invention set forth therein. Specifically, Brandin et al. does not teach or suggest a method for hashing that includes "reading a partial key from the memory that corresponds to said hash value, wherein said hash value is based on said original key" as is set forth in Claim 1 (Claim 15 contains similar limitations).

Brandin et al. only discloses a dissimilar method for forming a hashing code. A review of the passages of Brandin et al. indicated in the Office Action to disclose that keys are used to generate a hash value that point to locations where partial keys are stored in memory indicates that in fact there is no disclosure in Brandin et al. that indicates that partial

keys are stored at all. Actually, Brandin et al. discloses that keys are used to identify addresses in memory where general information is stored (column 2, lines 43-53). Moreover, Brandin et al. discloses (see column 7, lines 15-25) that separate portions of a single key are used to generate an "extended transform."

Brandin et al. discloses that such extended transforms are needed when a key is longer than 64 bits. It should be appreciated that this is very different from using a key to identify addresses in memory where partial keys are stored as is required to meet the limitations of Claim 1. In fact, nowhere in the Brandin et al. reference is it taught or suggested that the addresses of partial keys in memory are identified using keys as is set forth in Claim 1 (Claim 15 contains similar limitations).

Rajski does not teach or suggest a modification of Brandin et al. that would remedy the deficiencies of Brandin et al. that are outlined above. More specifically, Rajski does not teach or suggest a method for hashing that includes "reading a partial key from the memory that corresponds to said hash value, wherein said hash value is based on said original key" as is set forth in Claim 1 (Claim 15 contains similar limitations).

Rajski et al. shows a very different method for synthesizing linear finite state machines. However, Rajski et al. does not teach the generation of a hash value from a full key which is used to point to one of a plurality of partial keys stored in memory as is set forth in Claim 1 (Claim 15 contains similar limitations). Consequently, the embodiments of Applicant's invention that are set forth in Claims 1 and 15 are not anticipated or rendered obvious by Brandin et al. in view of Rajski et al. and further in view of Biran et al. Accordingly, Applicants respectfully submit that Brandin in view of Rajski et al. in further view of Biran et al. does not anticipate or render obvious the embodiments of the present claimed invention as are recited in Claims 2-4 which depend from Claim 1 and Claims 16-18

which depend from Claim 15. Consequently, the rejection of Claims 1-4 and 15-18 under 35 U.S.C. 103(a) is improper and should be withdrawn.

Claims 6 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Brandin et al. (US Patent No.6,493,813) in view of Biran et al. (US Patent No.6,345,347) in further view of Ji et al. (US Publication 2005/0086363 A1). Ji et al. does not teach or suggest a modification of Brandin et al. and Biran et al. that would remedy the deficiencies of Brandin et al. and Biran et al. that are outlined above. More specifically, Ji et al. does not teach or suggest a method for hashing that includes "reading a partial key from the memory that corresponds to said hash value, wherein said hash value is based on said original key" as is set forth in Claim 1 (from which Claim 6 depends; Claim 15 from which Claim 20 depends contains a similar limitation). Consequently, the embodiments of the present invention that are set forth in Claims 6 and 20 are not anticipated or rendered obvious by Brandin et al. in view of Biran et al. and further in view of Ji et al.

Claim 13 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Brandin et al. (US Patent No.6,493,813) in view of Bryg et al (US Patent No.6,430,670). Bryg et al. does not teach or suggest a modification of Brandin et al. that would remedy the deficiencies of Brandin et al. that are outlined above. More specifically, Bryg et al. does not teach or suggest a hashing apparatus that includes "a hash function block coupled to a memory that applies any polynomial to a full key and generates a hash value which is used to point of one of the plurality of partial keys stored in memory" as is set forth in Claim 7 (from which Claim 13 depends). Consequently, the embodiments of the present invention that are set forth in Claim 13 is not anticipated or rendered obvious by Brandin et al. in view of Bryg et al.

Claims 5 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Brandin (US Patent No. 6,493,813) in view of Biran (US Patent No. 6,345,347) in further view of Bryg et al. (US Patent No.6,430,670). Bryg et al. does not teach or suggest a

modification of Brandin et al. that would remedy the deficiencies of Brandin that are outlined above. More specifically, Bryg et al. does not teach or suggest a method for hashing that includes "reading a partial key from the memory that corresponds to said hash value, wherein said hash value is based on said original key" as is set forth in Claim 1. Consequently, the embodiments of the present invention that are set forth in Claims are not anticipated or rendered obvious by Brandin et al. in view of Bryg et al.

Claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Brandin (US Patent No.6,493,813) in view of Ji et al. (US Patent No. 2005/0086363). Ji et al. does not teach or suggest a modification of Brandin that would remedy the deficiencies of Brandin that are outlined above. More specifically, Ji et al. does not teach or suggest a hashing apparatus that includes "a hash function block coupled to a memory that applies any polynomial to a full key and generates a hash value which is used to point of one of the plurality of partial keys stored in memory" as is set forth in Claim 7. Consequently, the embodiment of the present invention that is set forth in Claim 14 is not anticipated or rendered obvious by Brandin et al. in view of Ji et al.

Claim 26 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Brandin (US Patent No. 6,493,813) in view of Biran (US Patent No. 6,345,347) and Bryg et al (US Patent No. 6,430,670). Neither Brandin et al. nor Biran et al. teaches or suggests a method for accessing data that includes "reading a partial key from the memory corresponding to the value" that is generated from an original key as is set forth in Claim 26 (a limitation similar to those contained in Claims 1, 7 and 15 discussed above). And, Bryg et al. does not teach or suggest a modification of Brandin et al. and Biran et al. that would remedy the deficiencies of Brandin et al. and Biran et al. Consequently, the embodiment of the present invention that is set forth in Claim 26 is not anticipated or rendered obvious by Brandin et al. in view of Biran et al. and Bryg et al.
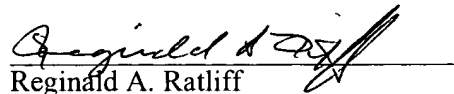
Conclusion

In light of the above-listed amendments and remarks, Applicants respectfully request allowance of the remaining Claims.

The Examiner is urged to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

Respectfully submitted,

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